## REMARKS

The applicants have had an opportunity to carefully consider the USPTO Final Office Action of October 6, 2005 and believe this amendment is fully responsive to every point raised in the Office Action. Reconsideration of the application is respectfully requested in view of the following remarks. Claims 1-14 and 16-20 remain in the application after this amendment is entered.

## I. THE OFFICE ACTION

The specification was objected to for not defining "$\tau$."

Claims 1-7 and 9-20 stand rejected under 35 U.S.C. § 103(a) for obviousness over U.S. Pat. No. 5,767,956 to Yoshida in view of U.S. Pat. No. 6,734,955 to Wight.

Claim 8 is identified as containing allowable subject matter.

## II. SUMMARY OF INTERVIEW

The undersigned conducted a telephone interview with Examiner Nguyen on November 11, 2005 regarding the Office Action of October 6. The Applicant and the undersigned thank the Examiners for the many courtesies extended during that interview. During the interview objection to the specification and independent claims 1, 14, and 19 were discussed. With regard to defining the symbol "$\tau$," the Examiner agreed that referencing where "$\tau$" was defined in the originally-filed specification would overcome the objection. An amendment to limit claim 14 to "optical correlation" was proposed. The Examiner agreed that, if submitted, this amendment would be entered. With regard to rejection of claims 1, 14, and 19, the Examiner agreed that Yoshida did not disclose "optical correlation" and that Wight did not appear to either. However, the Examiner stated that he would have to review Wight again to determine if it disclosed "optical correlation."

## III. THE NON-ART OBJECTIONS

### The Originally-Filed Specification Defines the Symbol "$\tau$."

The symbol "$\tau$" is presented in equation (1) (see page 3, line 28) and equation (2) (see page 4, line 1) of the originally-filed specification. The symbol "$\tau$" is defined in the originally-filed specification at page 4, lines 12-13 and is shown in originally-filed Figure 1 between each

tap of a tapped delay line 110. More specifically, "$\tau$" is defined as "a time delay ... between each tap" in the originally-filed specification. Accordingly, the applicants respectfully request withdrawal of the objection associated with defining "$\tau$" in the specification.

## IV. THE ART REJECTIONS

**Claims 1-7, 9-14, and 16-20 Patentably Distinguish Over the Combination of Yoshida and Wight.**

The USPTO has rejected claims 1-7, 9-14, and 16-20 for obviousness over the combination of Yoshida and Wight. In support of rejection independent claims 1, 14, and 19, the USPTO states that Yoshida discloses transmitting and receiving the signal over an optical fiber (col. 3, lines 59-60), comparing the received signal to the known signal using optical correlation (col. 3, lines 55-67), and measuring a position of a failure point (col. 5, lines 45-50) and that Wight discloses measuring dispersion of a link (Abstract) by comparing and correlating an optical signal (Abstract). The applicants respectfully disagree with the USPTO's position on each of these points.

First, at col. 3, lines 59-60, Yoshida discloses "a reflection light detector for converting a reflected optical pulse of a pseudo random signal to an electrical pulse signal." Notably, Yoshida does not disclose or fairly suggest "transmitting and receiving the signal over an optical link" as recited in independent claims 1, 14, and 19. Yoshida discloses "an optical power comparator for comparing an output optical power from the optical pulse generator and a reflected pulse power from an optical cable" (col. 3, lines 55-58). However, the Yoshida comparator receives a reflected optical signal that is converted to an electric signal (col. 5, lines 51-56) rather than a optical signal that passes through an optical link.

Next, Yoshida does not disclose or fairly suggest "comparing the received signal to a known signal using **optical correlation**" as recited in claims 1, 14, and 19. The USPTO cited col. 3, lines 55-67 of Yoshida to support rejection of this claim element. However, the term "correlation" is not found in this cited section of Yoshida. Moreover, **Yoshida does not disclose or fairly suggest the use of optical correlation at all**. Yoshida discloses that the "reflected optical pulse is converted to an electric signal by a reflected light detector 30 ... and is sent to a correlation detector 27" (col. 5, lines 54-56) and "in the correlation detector 27, the correlation is

detected between the electric signal of the reflected light pulse and the random pulse signal from the variable delay circuit 26" (col. 6, lines 5-7). Notably, **the correlation disclosed in Yoshida is electrical correlation (col. 6, lines 5-7) rather than optical correlation**.

As stated by the USPTO, Yoshida discloses "measuring a position of a failure point" of an optical transmission line (col. 5, lines 45-50) Yoshida also discloses "an improved backward Brillouin scattering optical time domain reflectometry (OTDR) device is provided which is capable of ... measuring the position of the failure part with high resolution" (Abstract) and an "OTDR is generally used as a means for measuring distances of failure points or fractured points in a long distance optical device such as an optical transmission line" (col. 1, lines 18-21). However, as stated by the USPTO, "Yoshida does not explicitly disclose how to [detect] the quality of the fiber link as claimed." (10/6/05 Office Action, page 2, last para.)

Finally, Wight does not disclose or fairly suggest "determining a quality of signal of the optical link based on the comparison" as recited in independent claim 1 or "determining a quality of the optical link based on the comparison" as recited in independent claims 14 and 19. The "comparison" in claims 1, 14, and 19 is a reference to the "comparing" element of the claims which uses "optical correlation." The USPTO cited the Abstract of Wight to support rejection of this claim element and stated that the "measuring dispersion of a link by comparing and correlating an optical signal" is disclosed in the Abstract. Moreover, **Wight does not disclose or fairly suggest the use of optical correlation at all**. Wight "measures the dispersion" of a link by detecting a reference signal and a test signal through an optical link 7, changing the test signal from a first wavelength $\lambda 1$ to a second wavelength $\lambda 2$, detecting the test signal through the optical link at the second wavelength, and calculating the link dispersion for a wavelength $\lambda=(\lambda 1 + \lambda 2)/2$ using the phases measured for the two test wavelengths with respect to the reference wavelength (col. 5, lines 51-62). Detectors 2 and 2' convert the reference and test optical signals to an electrical format (col. 6, lines 27-29). Electrical data signals from the detectors 2 and 2' are provided to a phase measurement unit 10 which detects when the receiver is locked on the frame of the received signal to measure the rotation signal sing the correlation between the data demultiplexed by serial-to-parallel converter 4, 4' and respective divided clocks (col. 9, lines 18-23). The phase measurement unit 10 also processes the electrical data signals (i.e., phase difference signals) using a comparator 12 (col. 9, lines 15-17). Notably, **Wight does not determine the quality of an optical link based on a comparison using optical correlation**.

**Any comparison or correlation in Wight is done on electrical signals rather than optical signals (col. 9, lines 15-23).**

Moreover, the natural and logical teachings of the cited references would not motivate one to modify Yoshida to arrive at the claimed inventions. Notwithstanding the PTO's assertion to the contrary, there is no motivation to combine the "dispersion measurement" calculated from multiple phase measurements as disclosed in Wight with the "electrical correlation" of an electrical signal produced from an optical pulse reflected by an optical cable to a reference electrical signal from a pulse generator as disclosed in Yoshida. Additionally, even if such motivation existed, combining Wight's "dispersion measurement" with Yoshida would not result in the inventions claimed in the present set of claims.

Based on the foregoing, independent claims 1, 14, and 19 are patentably distinct from the combination of Yoshida and Wight for a number of separate grounds. Accordingly, the applicants respectfully submit that independent claims 1, 14, and 19 and claims dependent thereon (i.e., respectively, claims 2-13, claims 16-18, and claim 19) are currently in condition for allowance.

## CONCLUSION

Based on the foregoing remarks, the applicants believe that all of the claims in this case (i.e., claims 1-14 and 16-20) are now in a condition for allowance and an indication to that effect is earnestly solicited. Furthermore, if the USPTO believes that additional discussions or information might advance the prosecution of this case, the USPTO should feel free to contact the undersigned at the telephone number indicated below.

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Respectfully submitted,

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